CLAIMS

1. A crankcase scavenged two-stroke engine (1) comprising a cylinder (15) including scavenging ports (31, 31') and at least one exhaust port, a piston (13), a connecting rod (17), a crankshaft (18) and a generally sealed crankcase (16) for inducting a fuel/air mixture from a fuel dosage means (37) and being connected to the scavenging ports (31, 31') by means of transfer ducts (3, 3') for inducting pure air let in from connecting ports (8, 8') near the scavenging ports (31, 31') in the cylinder (15), **characterized** by the transfer duct (3, 3') volume being less than 20% of a volume swept by the piston (13) during an entire revolution of the crankshaft (18), by recesses (10, 10') formed in an outer periphery of the piston (13), said recesses (10, 10') co-operating with the connecting ports (8, 8') in the cylinder wall for controlling the filling of the transfer ducts (3, 3') with air, and by an inlet tube (22) in the cylinder wall for supplying the air/fuel mixture, said inlet tube (22) being connected to the crankcase (16) and covered by the piston (13) as the piston (13) is in the lower position, and open to the crankcase (16) as the piston (13) is in the higher position.

2. The two-stroke engine according to claim 1, wherein the exhaust port is connected to a muffler comprising catalytic means.

3. The two-stroke engine according to claim 2, wherein the catalytic means is a wire mesh catalyst comprising a wind of metal wires coated with catalytic compounds.

4. The two-stroke engine according to claim 3, wherein the catalytic compound is a noble metal, e.g. Platinum, Palladium, Rhodium, or a mixture thereof.

5. The two-stroke engine according to any of the preceding claims, wherein the fuel dosage means (37) is a carburettor.

6. The two-stroke engine according to any of the preceding claims, wherein the fuel dosage means (37) is an injection system.

7. A scavenging method for a crankcase scavenged two-stroke engine (1) comprising a cylinder (15) including scavenging ports (31, 31') and at least one exhaust port, a piston (13), a connecting rod (17), a crankshaft (18) and a generally sealed crankcase (16) inducting a fuel/air mixture and being connected to the scavenging ports (31, 31') by means of transfer ducts (3, 3') which are inducting pure air let in from connecting ports (8, 8') near the scavenging ports (31, 31') in the cylinder (15), comprising the following steps:

inducting the generally pure air into the transfer ducts (3, 3') by means of recesses (10, 10') formed in the piston wall, said recesses (10, 10') co-acting with the connecting ports (8, 8') in the cylinder wall to control the induction of air into the transfer ducts (3, 3'),

inducting the fuel/air mixture through an inlet tube (22) in the cylinder wall that is covered by the piston (3) as the piston (3) is in a lower position and is open to the crankcase(16) as the piston (3) is in a higher position,

characterized in that the transfer duct (3, 3') volume vs the volume of the inducted pure air is such that an amount

of the induced pure air will mix with the fuel/air mixture in the crankcase (16).

8. The method according to claim 7, wherein the transfer duct (3, 3') volume is less than 20% of the volume swept by the piston (13) during a full revolution of the crankshaft (18).